Appendix A

(i) Amendments
in marked-up form to
Claim 10,

(ii) New Claims 15~22, and

(iii) Status of all other claims

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1 ~ 9. (canceled)

10. (once amended) ~~A method of using the composition of Claim 1 or the improved gel composition of Claim 9 wherein said method comprises contacting in a dehydrogenation process reactor said composition with a hydrocarbon feed, said hydrocarbon being from C_2 to C_{10}.~~ A method of dehydrogenating a hydrocarbon comprising contacting in a dehydrogenation process reactor a hydrocarbon feed and a gel composition comprising a gel that is substantially localized within the pores of a solid material selected from the group consisting of alumina, silica, titania, zirconia, carbon, molecular sieves, porous minerals, montmorillonite clay, aluminosilicate clays, carbides, nitrides, phosphates, and sulfides; wherein the hydrocarbon is a C_2 to C_{10} hydrocarbon.

11. (original) The method of Claim 10 wherein said hydrocarbon is selected from the group consisting of ethane, propane, and isobutane.

12. (original) The method of Claim 11 wherein the gas hourly space velocity of the feed gas is from about 100 cc hydrocarbon feed per cc gel composition per hour to about 3000 cc hydrocarbon feed per cc gel composition per hour.

13. (original) The method of Claim 12 wherein the gas hourly space velocity of the gas feed is from about 500 cc hydrocarbon feed per cc gel composition per hour to about 1000 cc hydrocarbon feed per cc gel composition per hour.

14. (original) The method of Claim 11 wherein said composition is regenerated periodically to remove coke, said regeneration comprising heating said composition with an oxygen-containing gas.

15. (new) A method of dehydrogenating a hydrocarbon comprising contacting in a dehydrogenation process reactor a hydrocarbon feed and a composition of matter comprising (a) a solid material having pores, and (b) a gel;

wherein the gel is substantially localized within the pores of the solid material;

wherein the gel comprises at least one catalytically active element, and optionally comprises chromium when the catalytically active element is other than chromium.; and

wherein the hydrocarbon is a C_2 to C_{10} hydrocarbon.

16. (new) The method of Claim 15 wherein said hydrocarbon is selected from the group consisting of ethane, propane, and isobutane.

17. (new) The method of Claim 15 wherein the gas hourly space velocity of the feed gas is from about 100 cc hydrocarbon feed per cc gel composition per hour to about 3000 cc hydrocarbon feed per cc gel composition per hour.

18. (new) The method of Claim 15 wherein the gas hourly space velocity of the gas feed is from about 500 cc hydrocarbon feed per cc gel composition per hour to about 1000 cc hydrocarbon feed per cc gel composition per hour.

19. (new) The method of Claim 15 wherein said composition is regenerated periodically to remove coke, said regeneration comprising heating said composition with an oxygen-containing gas.

20. (new) The method of Claim 15 wherein the solid material having pores is selected from the group consisting of alumina, silica, titania, zirconia, carbon, molecular sieves, porous minerals, microporous, mesoporous and macroporous materials, montmorillonites, aluminosilicate clays, and binary, ternary, quaternary and higher order oxides, carbides, nitrides, phosphates, and sulfides.

21. (new) The method of Claim 15 wherein said catalytically active element is chromium and said solid material having pores is alumina.

22. (new) The method of Claim 15 wherein said catalytically active metal is selected from the group consisting of platinum and gold.